11-7-1985

Test 1587: Kubota L2850 2WD and 4WD 8-Speed

Tractor Museum
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NEBRASKA TRACTOR TEST 1587—KUBOTA L2850 4WD DIESEL ALSO KUBOTA L2850 DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F *(°C)* Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed — Two hours (PTO Speed — 611 rpm)								
27.51 *(20.51)*	2600	1.692 *(6.403)*	0.431 *(0.262)*	16.26 *(3.204)*	205 *(96.2)*	57 *(13.7)*	75 *(24.0)*	29.12 *(98.32)*
Standard Power Take-off Speed (540 rpm) — One Hour								
27.96 *(20.85)*	2298	1.647 *(6.233)*	0.413 *(0.251)*	16.98 *(3.344)*	221 *(105.1)*	56 *(13.1)*	75 *(23.7)*	29.07 *(98.17)*
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
23.76 *(17.72)*	2642	1.501 *(5.683)*	0.443 *(0.270)*	15.83 *(3.118)*	202 *(94.2)*	55 *(12.8)*	73 *(22.8)*	....
0.00 *(0.00)*	2816	0.556 *(2.105)*	....	....	180 *(81.9)*	56 *(13.3)*	74 *(23.1)*	....
12.22 *(9.11)*	2719	0.992 *(3.756)*	0.569 *(0.346)*	12.32 *(2.426)*	182 *(83.3)*	57 *(13.9)*	75 *(23.9)*	....
28.02 *(20.89)*	2600	1.698 *(6.428)*	0.425 *(0.259)*	16.50 *(3.250)*	202 *(94.2)*	58 *(14.4)*	76 *(24.2)*	....
6.25 *(4.66)*	2778	0.783 *(2.963)*	0.879 *(0.535)*	7.98 *(1.572)*	180 *(81.9)*	58 *(14.4)*	77 *(24.7)*	....
18.08 *(13.48)*	2682	1.228 *(4.647)*	0.476 *(0.290)*	14.73 *(2.901)*	185 *(85.0)*	58 *(14.4)*	76 *(24.4)*	....
Av 14.72 *Av (10.98)*	**2706**	**1.126** *(4.264)*	**0.537** *(0.326)*	**13.07** *(2.575)*	**188** *(86.8)*	**57** *(13.9)*	**75** *(23.8)*	**29.04** *(98.07)*

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power — Two Hours 6th (H-2) Gear											
23.08 *(17.21)*	1727 *(7.68)*	5.01 *(8.07)*	2599	7.02	1.711 *(6.476)*	0.520 *(0.316)*	13.49 *(2.658)*	202 *(94.2)*	55 *(12.8)*	70 *(20.8)*	28.61 *(96.61)*
75% of Pull at Maximum Power — Ten Hours 6th (H-2) Gear											
18.91 *(14.10)*	1347 *(5.99)*	5.27 *(8.47)*	2684	5.41	1.491 *(5.645)*	0.553 *(0.336)*	12.68 *(2.498)*	186 *(85.8)*	39 *(3.8)*	47 *(8.4)*	28.84 *(97.38)*
50% of Pull at Maximum Power — Two Hours 6th (H-2) Gear											
13.00 *(9.69)*	898 *(3.99)*	5.43 *(8.74)*	2729	4.05	1.190 *(4.506)*	0.642 *(0.391)*	10.92 *(2.151)*	185 *(85.0)*	39 *(3.9)*	46 *(7.8)*	28.88 *(97.52)*
50% of Pull at Reduced Engine Speed — Two Hours 7th (H-3) Gear											
12.99 *(9.69)*	897 *(3.99)*	5.43 *(8.75)*	1734	3.90	0.973 *(3.683)*	0.525 *(0.320)*	13.35 *(2.630)*	189 *(87.2)*	45 *(7.2)*	59 *(14.7)*	28.81 *(97.29)*
MAXIMUM POWER IN SELECTED GEARS											
19.04 *(14.19)*	3143 *(13.98)*	2.27 *(3.66)*	2680	14.72	4th (L-4) Gear			186 *(85.3)*	33 *(0.6)*	38 *(3.3)*	28.88 *(97.52)*
23.34 *(17.40)*	2542 *(11.31)*	3.44 *(5.54)*	2600	11.07	5th (H-1) Gear			200 *(93.1)*	55 *(12.8)*	70 *(21.1)*	28.66 *(96.78)*
24.02 *(17.91)*	1796 *(7.99)*	5.02 *(8.07)*	2601	7.00	6th (H-2) Gear			200 *(93.3)*	54 *(12.2)*	68 *(20.0)*	28.70 *(96.92)*
22.33 *(16.65)*	1030 *(4.58)*	8.13 *(13.09)*	2599	4.11	7th (H-3) Gear			199 *(92.8)*	55 *(12.8)*	70 *(21.1)*	28.64 *(96.71)*

LUGGING ABILITY IN 6th (H-2) GEAR

Crankshaft Speed rpm	2601	2347	2082	1826	1556	1305
Pull—lbs *(kN)*	1796 *(7.99)*	2024 *(9.00)*	2237 *(9.95)*	2359 *(10.49)*	2312 *(10.28)*	2241 *(9.97)*
Increase in Pull %	0	13	25	31	29	25
Power—Hp *(kW)*	24.02 *(17.91)*	24.14 *(18.00)*	23.40 *(17.45)*	21.48 *(16.01)*	17.94 *(13.38)*	14.65 *(10.93)*
Speed—Mph *(km/h)*	5.02 *(8.07)*	4.47 *(7.20)*	3.92 *(6.31)*	3.41 *(5.49)*	2.91 *(4.68)*	2.45 *(3.95)*
Slip %	7.00	8.15	9.27	9.91	9.81	9.36

Department of Agricultural Engineering

Dates of Test: October 30 to November 7, 1985

Manufacturer: KUBOTA, LTD., 2-47 Shikitsu-higashi, 1-chome, Naniwaku, Osaka, Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F *(15/15°C)*** 0.8424 **Fuel weight** 7.014 lbs/gal *(0.841 kg/l)* **Oil SAE** 20W **API service classification** CC-CD-SE **To motor** 1.597 gal *(6.045 l)* **Drained from motor** 1.518 gal *(5.747 l)* **Transmission and final drive lubricant** Shell Donax TD or equivalent **Front axle lubricant** SAE 80-90 gear oil **Total time engine was operated** 39.5 hours.

ENGINE: Make Kubota Diesel **Type** four cylinder vertical **Serial No.** V1702-DI-A-11319 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 3.23″ × 3.23″ *(82 mm × 82 mm)* **Compression ratio** 18 to 1 **Displacement** 105.7 cu in *(1732 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** L2850D-50954 **Tread width** rear 41.3″ *(1050 mm)* to 59.6″ *(1515 mm)* front 44.1″ *(1120 mm)* **Wheel base** 68.3″ *(1735 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.6″ *(777 mm)* Vertical distance above roadway 29.5″ *(750 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 0.8 *(1.3)* second 1.1 *(1.8)* third 1.8 *(2.9)* fourth 2.6 *(4.2)* fifth 3.9 *(6.3)* sixth 5.5 *(8.8)* seventh 8.6 *(13.8)* eighth 12.7 *(20.4)* reverse 0.7 *(1.2)*, 1.0 *(1.6)*, 1.6 *(2.6)*, 2.4 *(3.8)*, 3.5 *(5.7)*, 4.9 *(7.9)*, 7.7 *(12.4)* **Clutch** dual dry disc in combination with PTO operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 95″ *(2.4 m)* left 95″ *(2.4 m)*(on concrete surface without brake) right 110″ *(2.8 m)* left 110″ *(2.8 m)* **Turning space diameter** (on concrete surface with brake applied) right 197″ *(5.0 m)* left 197″ *(5.0 m)*(on concrete surface without brake) right 228″ *(5.8 m)* left 228″ *(5.8 m)* **Power take-off** 540 rpm at 2298 engine rpm **Unladen tractor mass** 2790 lb *(1266 kg)*.

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Engaged dB(A)	Disengaged
Maximum Available Power—Two Hours	90.5	90.0
75% of Pull at Maximum Power—Ten Hours		89.5
50% of Pull at Maximum Power—Two Hours		90.0
50% of Pull at Reduced Engine Speed—Two Hours		87.5
Bystander in 8th (H-4) gear		81.5

DRAWBAR PERFORMANCE
(Front Wheel Drive Engaged)

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power — Two Hours 6th (H-2) Gear											
23.16 *(17.27)*	1687 *(7.50)*	5.15 *(8.29)*	2599	4.63	1.704 *(6.449)*	0.516 *(0.314)*	13.59 *(2.678)*	202 *(94.2)*	54 *(11.9)*	65 *(18.3)*	28.59 *(96.54)*
MAXIMUM POWER IN SELECTED GEARS											
16.63 *(12.40)*	4030 *(17.93)*	1.55 *(2.49)*	2696	14.95	3rd (L-3) Gear			185 *(84.7)*	35 *(1.7)*	40 *(4.4)*	28.90 *(97.59)*
23.74 *(17.71)*	2477 *(11.02)*	3.60 *(5.79)*	2601	7.45	5th (H-1) Gear			200 *(93.1)*	55 *(12.8)*	69 *(20.6)*	28.68 *(96.85)*
23.93 *(17.84)*	1744 *(7.76)*	5.14 *(8.28)*	2599	4.73	6th (H-2) Gear			199 *(92.8)*	53 *(11.7)*	66 *(18.9)*	28.72 *(96.98)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 12.4-24; 4; 14 *(95)*	Two 12.4-24; 4; 14 *(95)*
Ballast	—Liquid (each)	265 lb *(120 kg)*	None
	—Cast Iron (each)	320 lb *(145 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7-16; 4; 26 *(180)*	Two 7-16; 4; 26 *(180)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	222 lb *(101 kg)*	None
Height of Drawbar		13 in *(330 mm)*	13 in *(330 mm)*
Static Weight with Operator	—Rear	2855 lb *(1295 kg)*	1685 lb *(764 kg)*
	—Front	1725 lb *(782 kg)*	1280 lb *(581 kg)*
	—Total	4580 lb *(2077 kg)*	2965 lb *(1345 kg)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2275 *(15690)*	
Location	lift cylinder	
Hydraulic oil temperature °F *(°C)*	189 *(87)*	
Location	hydraulic filter	
	Maximum Lift Capacity	**Lift Capacity for Transport**
QUICK ATTACH	no	
CATEGORY	I	*not measured
LOAD lbs *(kg)*	2046 *(928)*	
TIME sec	2.38	
HITCH POINT MOVEMENT in *(mm)*		
Lowest position	12.1 *(308)*	
Top of timed range	32.1 *(816)*	
Highest position	** 32.8 *(834)*	
LOAD CG MOVEMENT in *(mm)*		
Lowest position	11.1 *(282)*	
Top of timed range	36.9 *(937)*	
Highest position	37.9 *(963)*	

*Implement load capacity for transport purposes not specified by manufacturer.
** The observed power range, 20.7 in.*(526 mm)* is less than the minimum power range for Cat I, 22 in. *(559 mm)* specified by ASAE Standard S217.10

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 108°F *(42.1°C)*. Four gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1587,** December 4, 1985.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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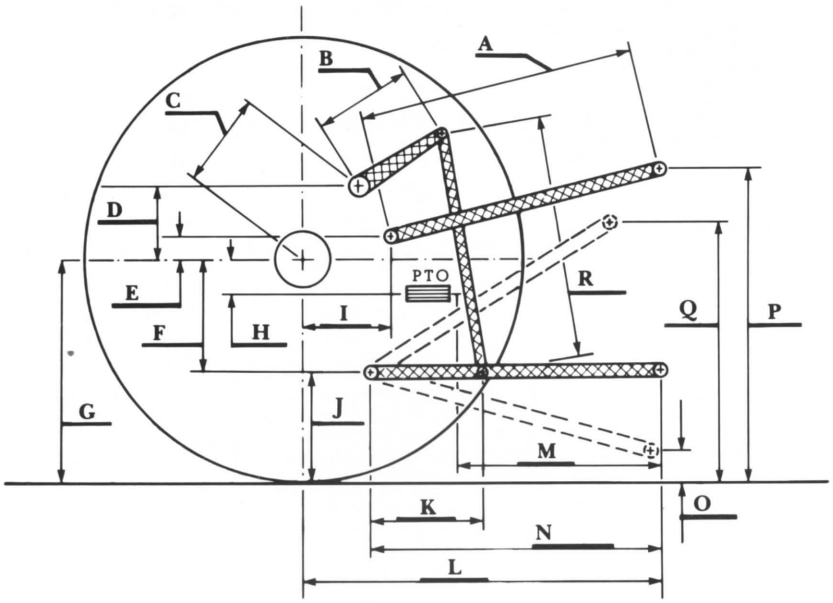

	inch	*mm*
A	27.1	*689*
B	9.1	*230*
C	10.7	*272*
D	10.6	*270*
E	8.5	*216*
F	4.4	*111*
G	20.9	*530*
H	0.8	*20*
I	3.1	*79*
J	16.5	*419*
K	12.2	*309*
L	29.8	*757*
M	22.9	*583*
N	26.8	*680*
O	6.6	*168*
P	34.5	*876*
Q	29.9	*759*
R	17.3	*438*

Hitch Dimensions as Tested — No Load

Kubota L2850 4WD Diesel

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